GEOLOGIC CONDITIONS

COASTAL PLAIN PROVINCE

ARTIFICIAL FILL

af Composed of heterogeneous material such as rock, unconsolidated sediment, slag, refuse and dredge spoil.

ALLUVIUM

Interbedded gravel, sand, silt and clay of variable composition and sorting.

TALBOT FORMATION

Qtc Buff to orange, poorly-sorted, poorly-bedded quartz silt with kaolinitic, illitic, and montmorillonitic clays.

Qts Poorly-sorted, well-bedded medium to coarse quartz sand with silts and kaolinite.

PATAPSCO FORMATION

Kpc Clay facies, buff mottled kaolinitic clay with variable amounts of guartz sand and silt.

Kps Sand facies, well sorted medium to fine quartz sand with locally abundant gravel.

ARUNDEL FORMATION

Kac Clay facies, gray, brown, black or red kaolinitic and illitic clay with lenses of quartz sand.

PATUXENT FORMATION

Kxs Sand facies, highly vriable, interbedded sand, gravel, silt and clay with hematite or limonite cementations in place.

Clay facies, light grey to brown clay containing variable amounts of silt with local concentrations of lignitic debris.

PIEDMONT PROVINCE

 Upland Gravel, poorly sorted fine sand to boulders commonly floating in a clay-sand mix. Deposits are common on topographies of hill tops and hillsides.

bl Bradshaw Layered Amphibolite, centimeter to meter scale layered amphibolite and hornblende quartz.

f Franklinville Gneiss, uniform medium to coarsegrained biotite, quartz and gneiss.

Pzb Baltimore Gabbro, massive hypersthene gabbro.

SYKESVILLE FORMATION

 pCwb - Boulder Gneiss, thick-bedded, contains lenses
 sy of metamorphosed conglomerate sandstone (formerly Wissahickon Formation).

pCwl - Schist, chiefly biotite-muscovite-plagioclase
 Loch schist with garnet, stuarolite and kyanite
 Raven (formerly Wissahickon Formation).

INTRUSIVE ROCK

Pzug - Undifferentiated ultramafic rocks. **Pzum**

BALTIMORE COMPLEX

Gabbro, pyroxene crystals, generally massive with wide varieties of mafic and ultramafic rocks.

bs Serpentinite

MAFIC ROCK

Xu Undifferentiated ultramafic rocks

Xpc Peters Creek Schist, chlorite-sericite schist containing interbedded quartzite.

Xgw Glennarm Wissahickon Schist, oligioclase mica schist including lenticular amphibolite bodies.

Xc Cockeysville Marble, white to bluish gray, finely to coarsely crystalline marble.

Xo Octoraro Schist, includes albite-chlorite schist, phyllite, some hornblende gneiss and granitized members.

CONESTOGA FORMATION

Occ Light-gray, thin-bedded, impure contorted limestone having shale partings.

LEDGER FORMATION

CI Light-gray, locally mottled, massive, pure dolomite.

KINZERS FORMATION

Ck Base, dark brown shale; middle, gray and white spotted limestone; top, sandy limestone weathered to fine grained porous sandy

VINTAGE FORMATION

Cv Dark gray, knotty, dolomite to marble at base.

ANTIETAM AND HARPERS FORMATION

Cah Includes Antietam Formation gray, buffweathering quartzite and quartz schist and Harpers Formation dark-greenish-gray phyllite and schist having thin quartzite layers in descending order.

CHICKIES FORMATION

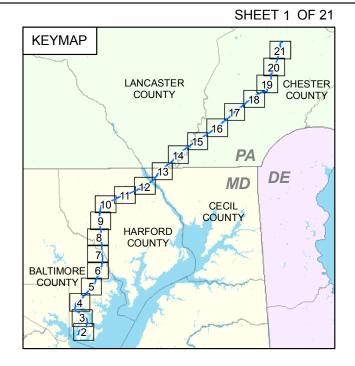
Cch Light gray, hard, massive quartzite and schist interbedded dark slate at top, conglomerate at bottom

PRECAMBRIAN ROCK

ggd Medium-grained light pink to greenish gray granodiorite and granodioritic gneiss - predominantly quartz, feldspar and mica.

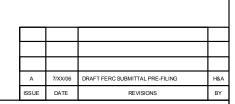
gga Dark, fine to medium-grained banded mafic gneiss (likely includes rocks of sedimentary origin).

Includes Pickering Gneiss and small areas of marble, quartz and feldspar; small amounts of metamorphic minerals.



NOTES:





Mid-Atlantic Express MID-ATLANTIC EXPRESS LLC SPARROWS POINT LNG BALTIMORE COUNTY, MD - CHESTER COUNTY, PA

Spatrows Point LNG

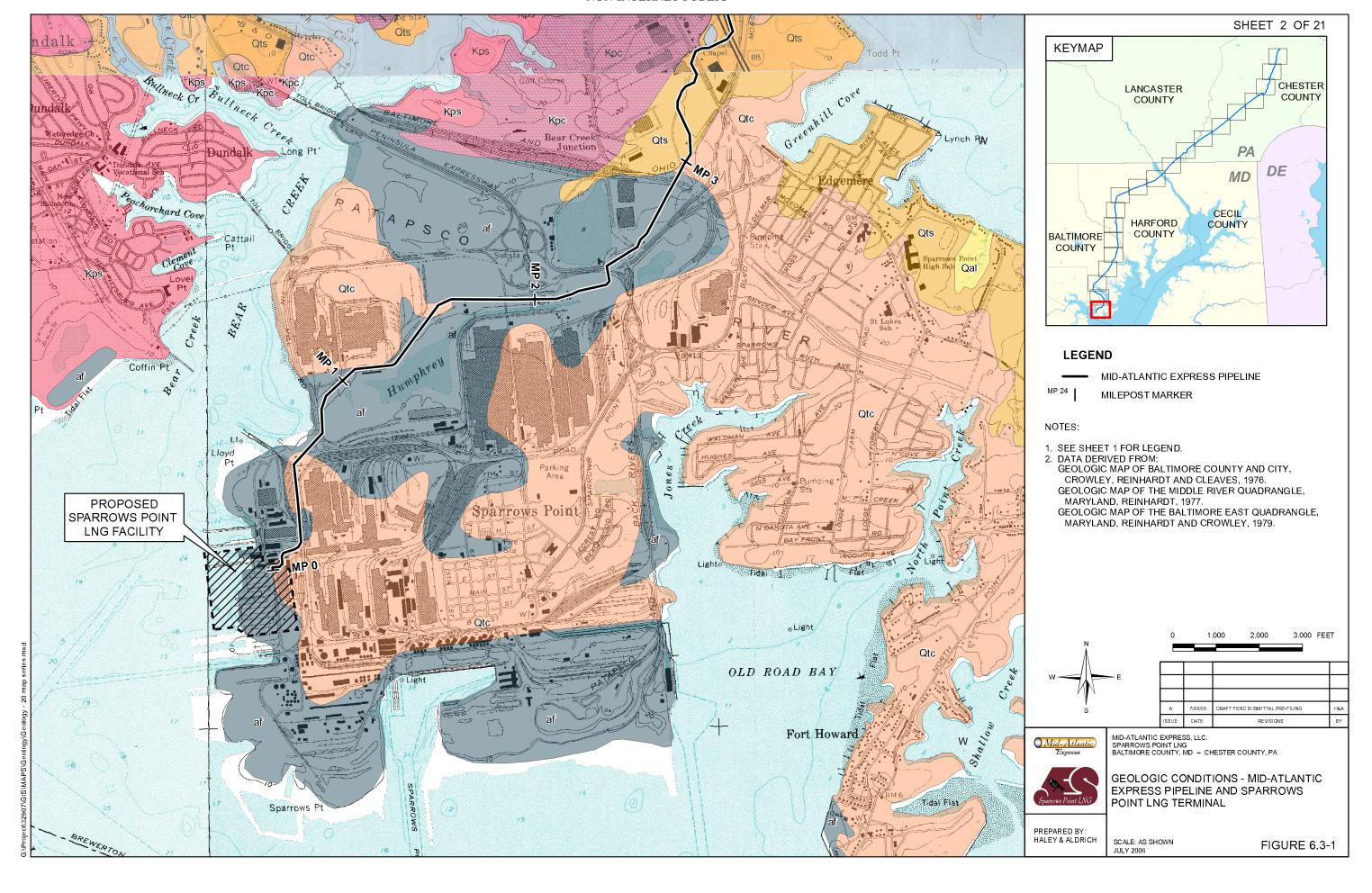
LEGEND SHEET
GEOLOGIC CONDITIONS - MID-ATLANTIC
EXPRESS PIPELINE AND SPARROWS
POINT LNG TERMINAL

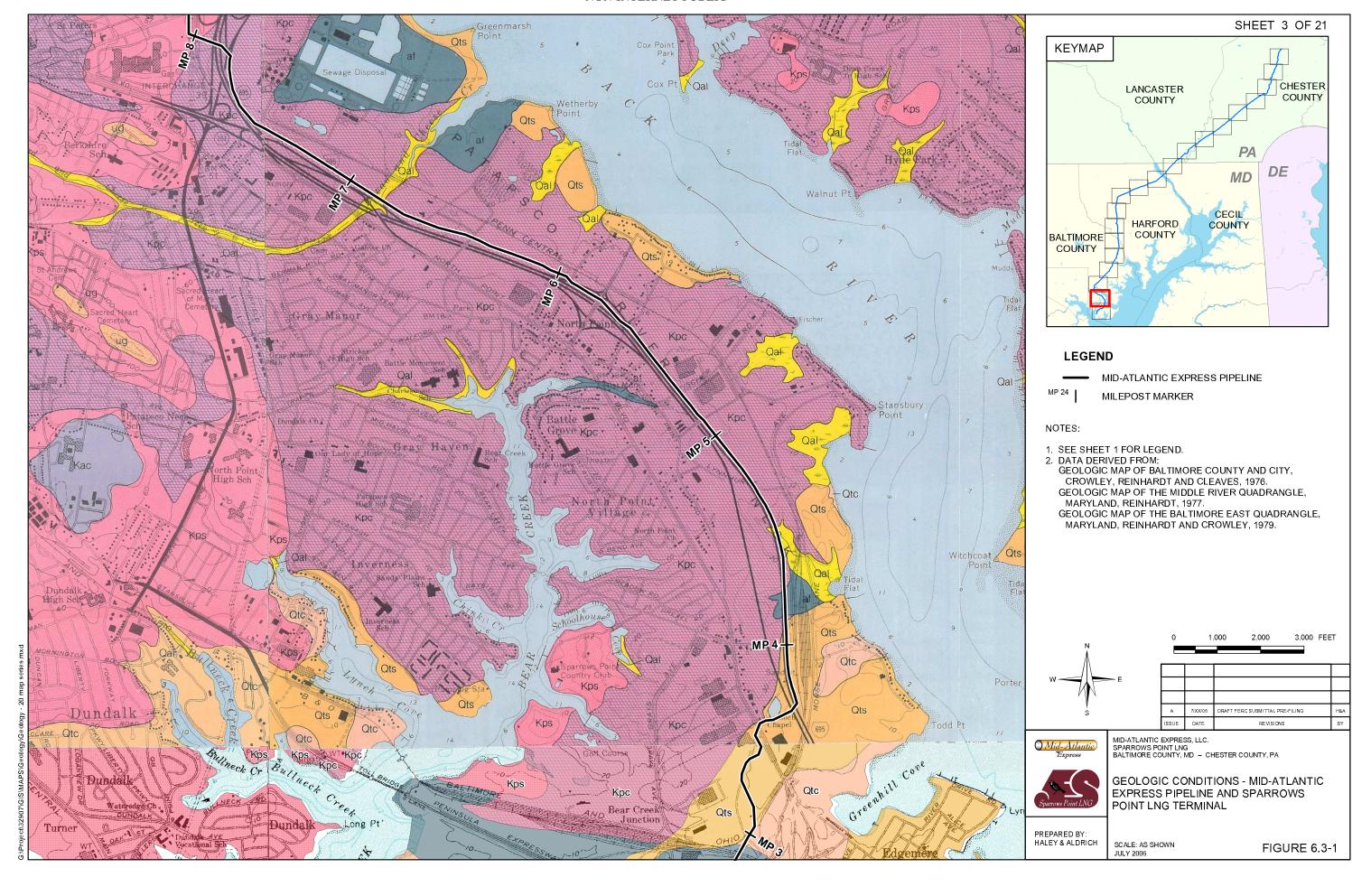
PREPARED BY: HALEY & ALDRICH

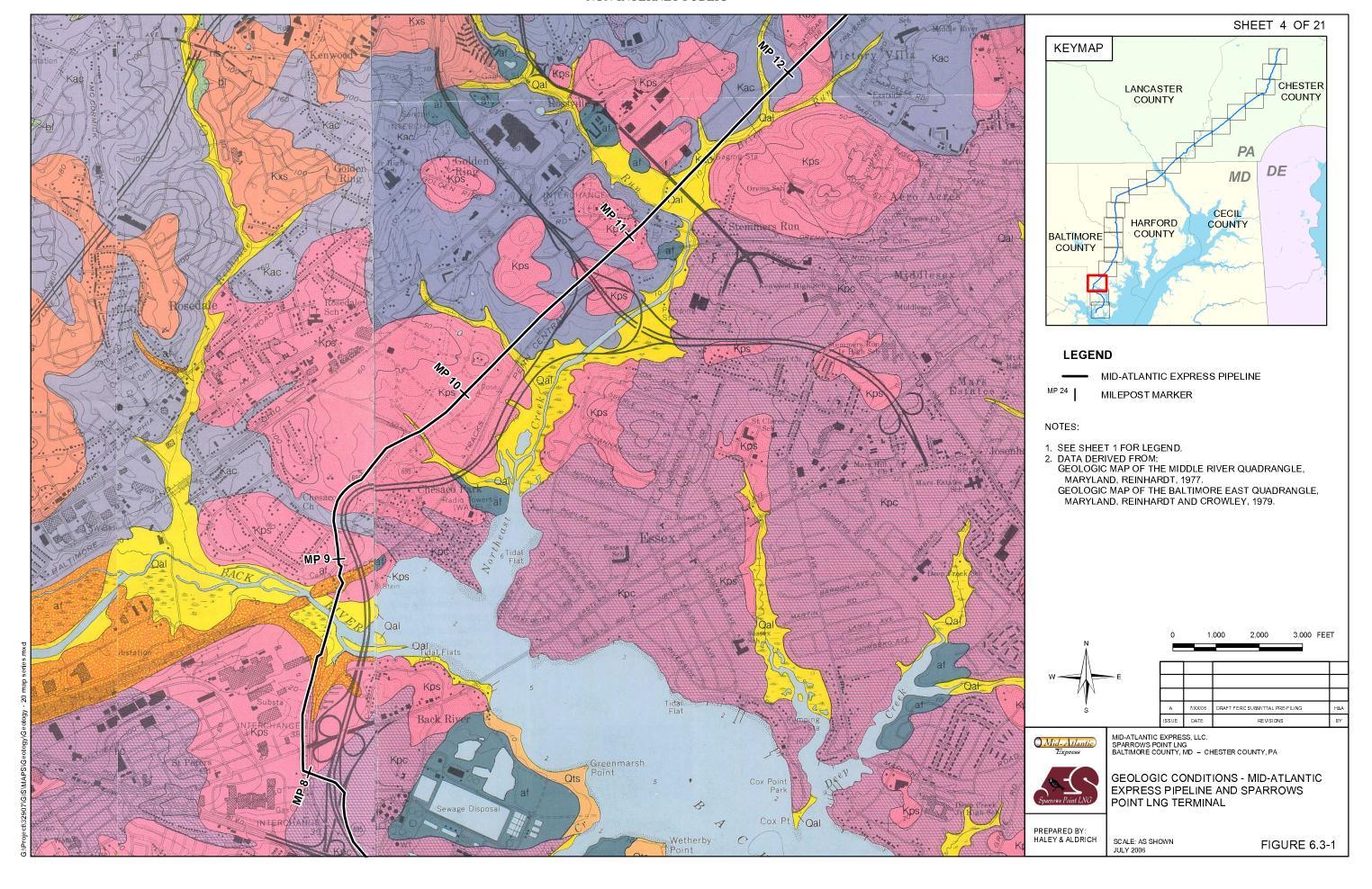
SCALE: AS SHOWN AUGUST 2006 FIGURE 6.3-1

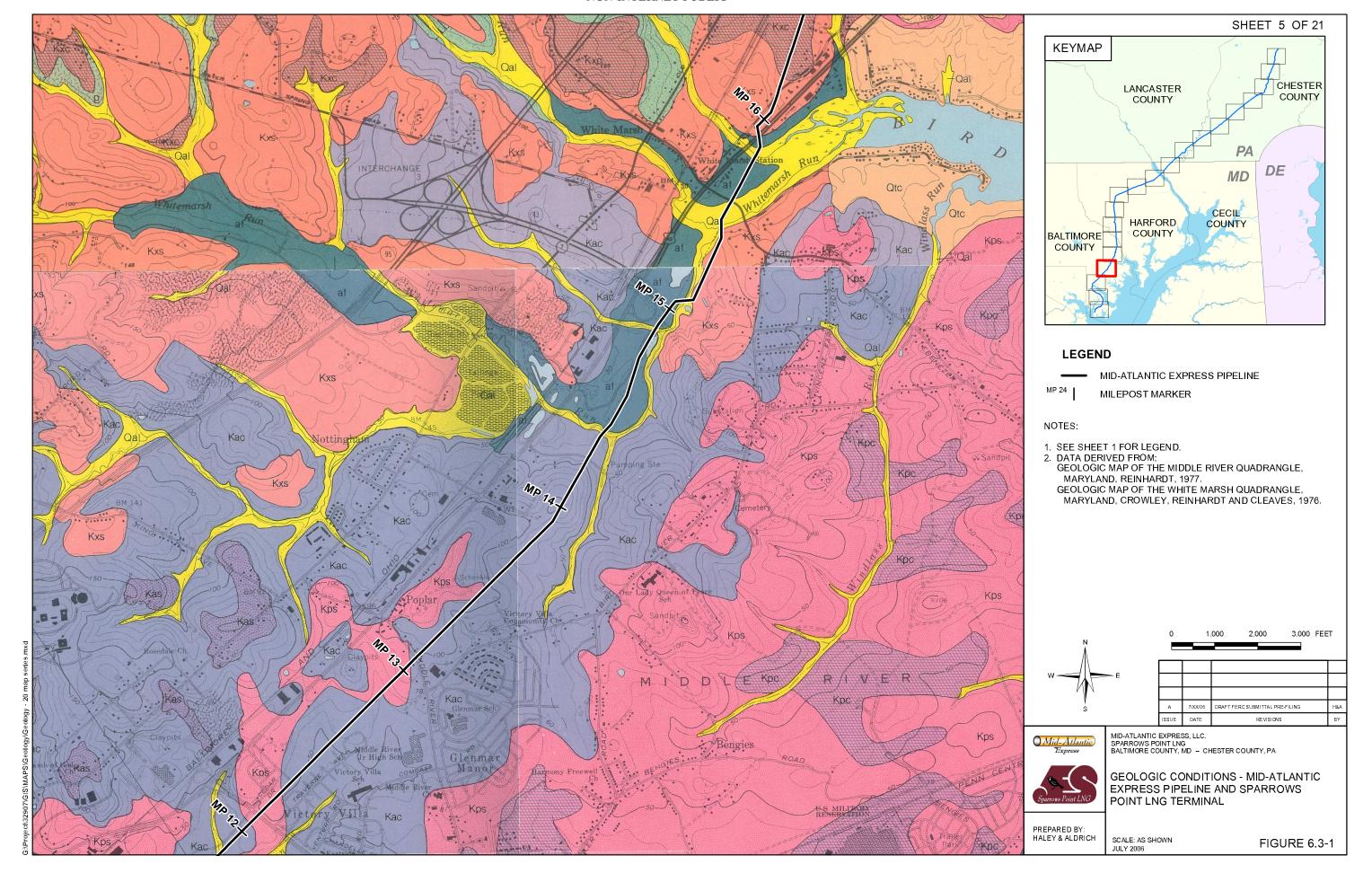
\32907\GIS\MAPS\Geology - 20 map series - LEGEND

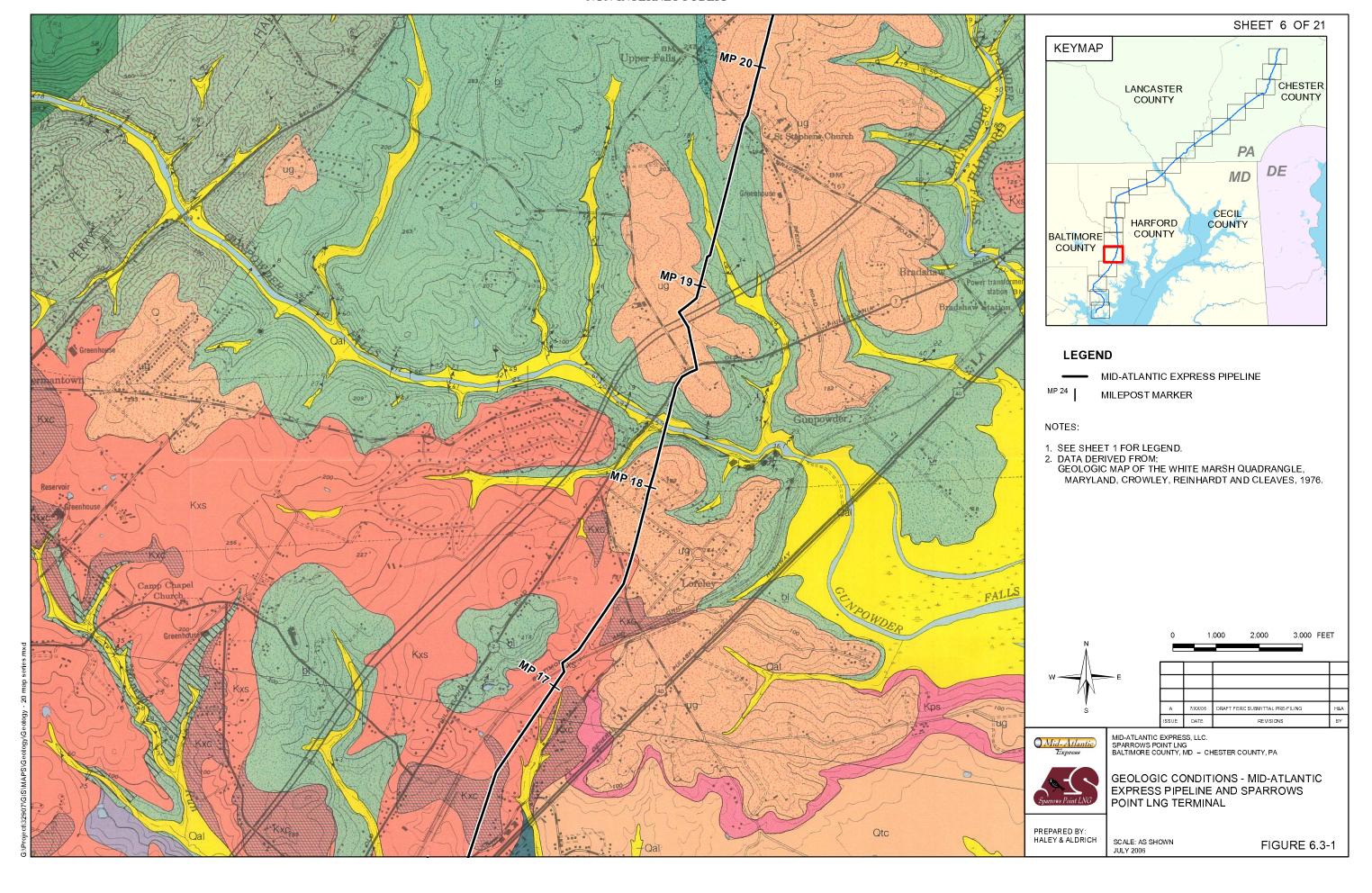
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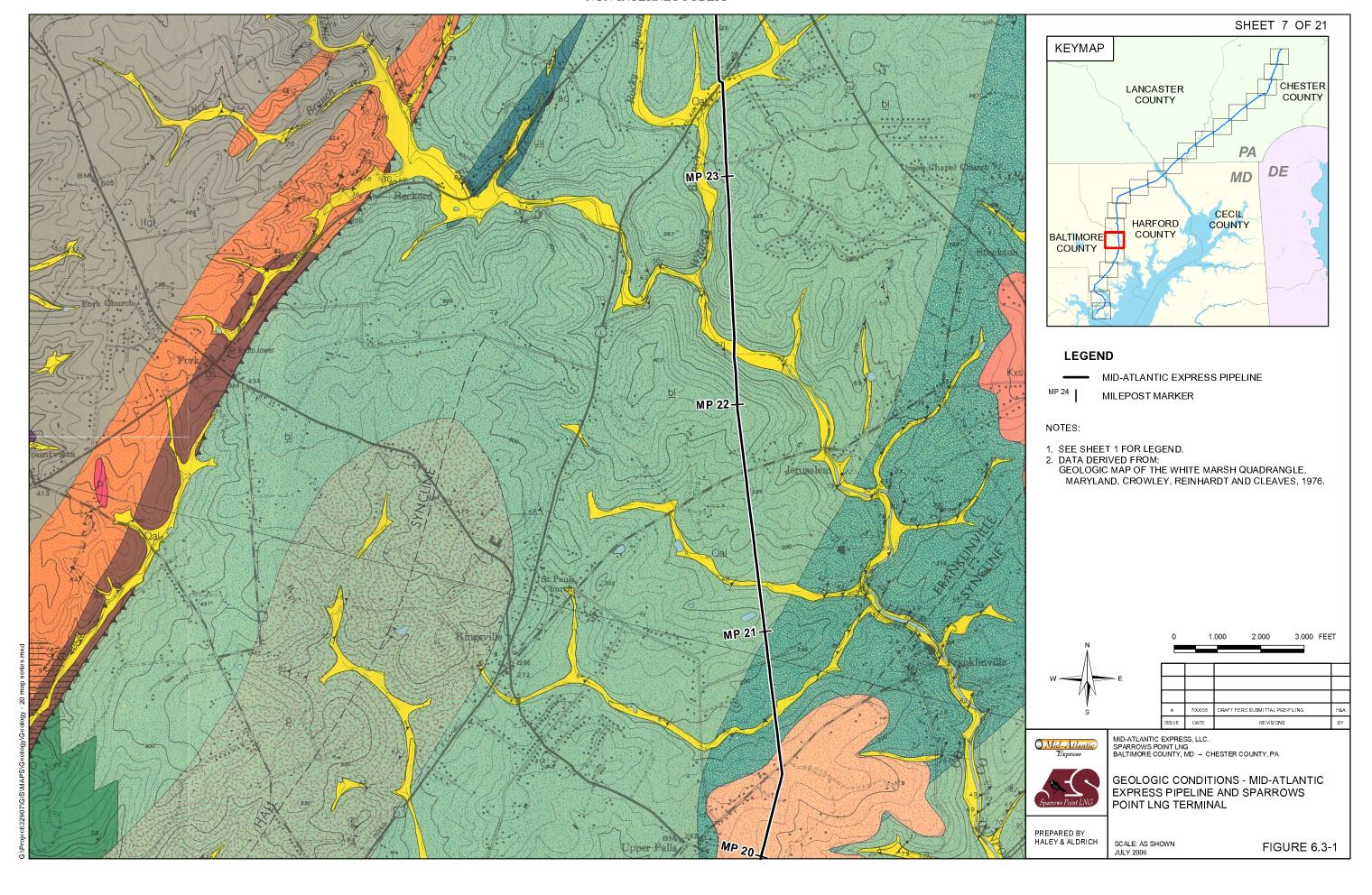


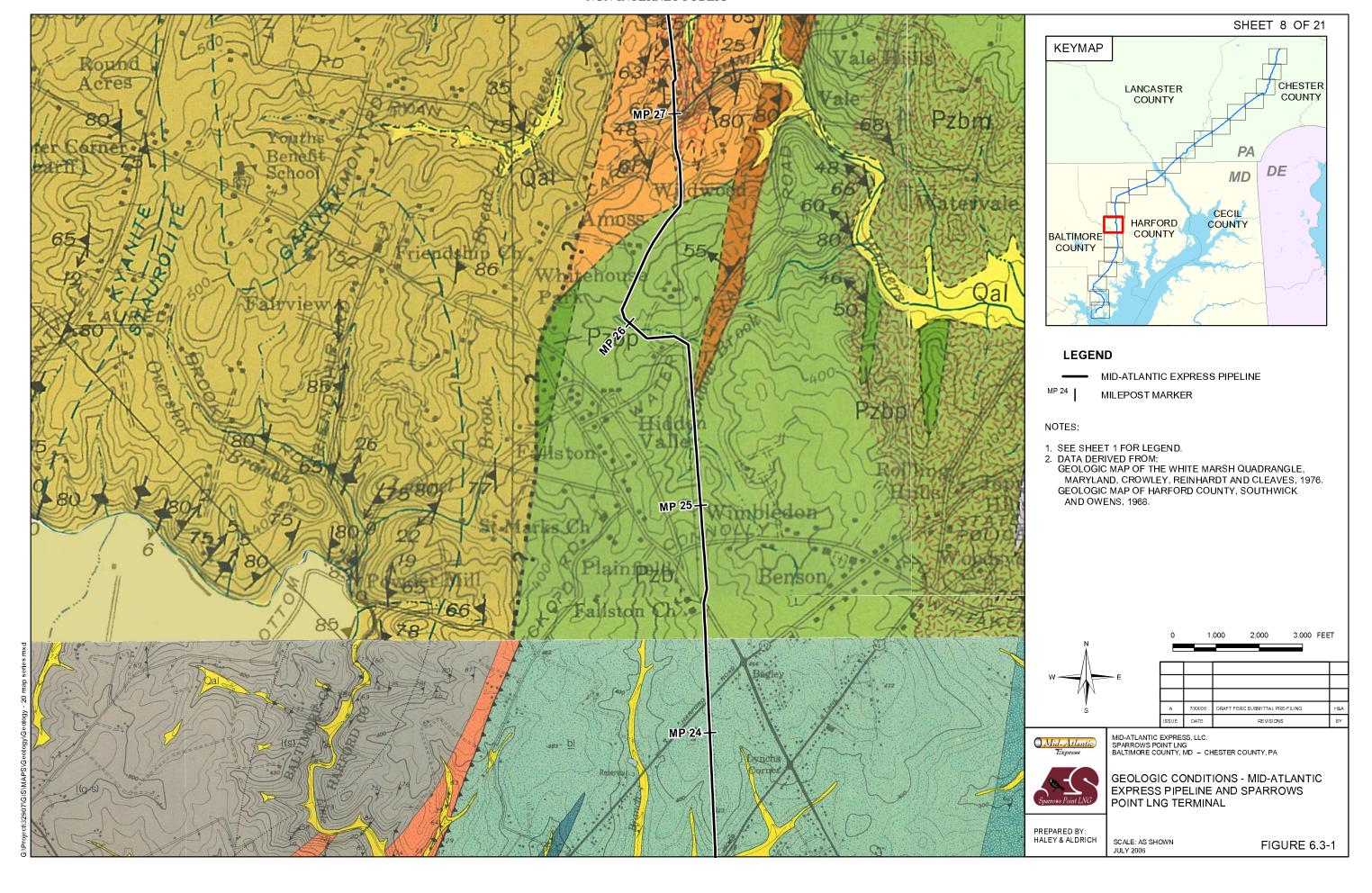


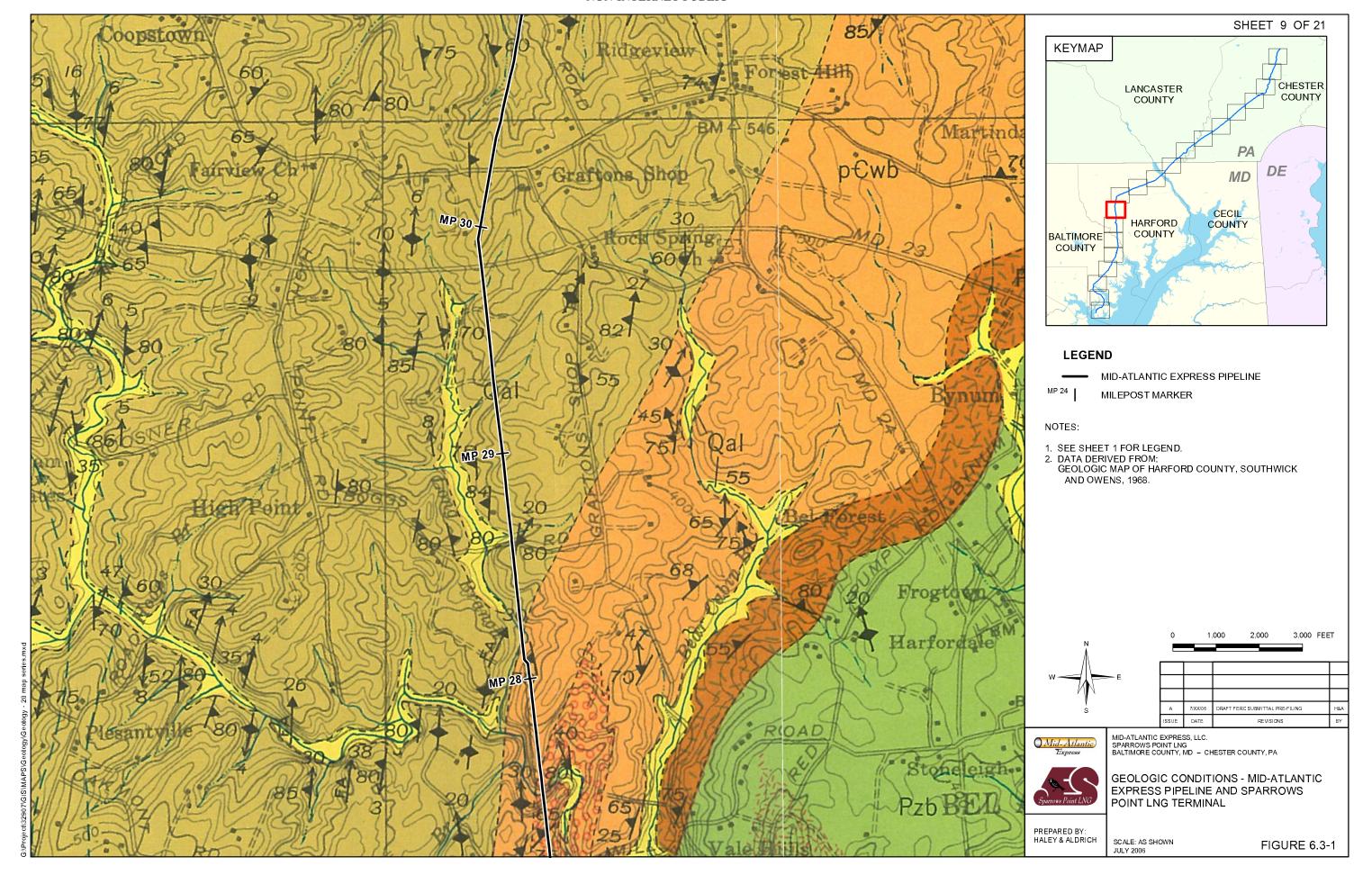


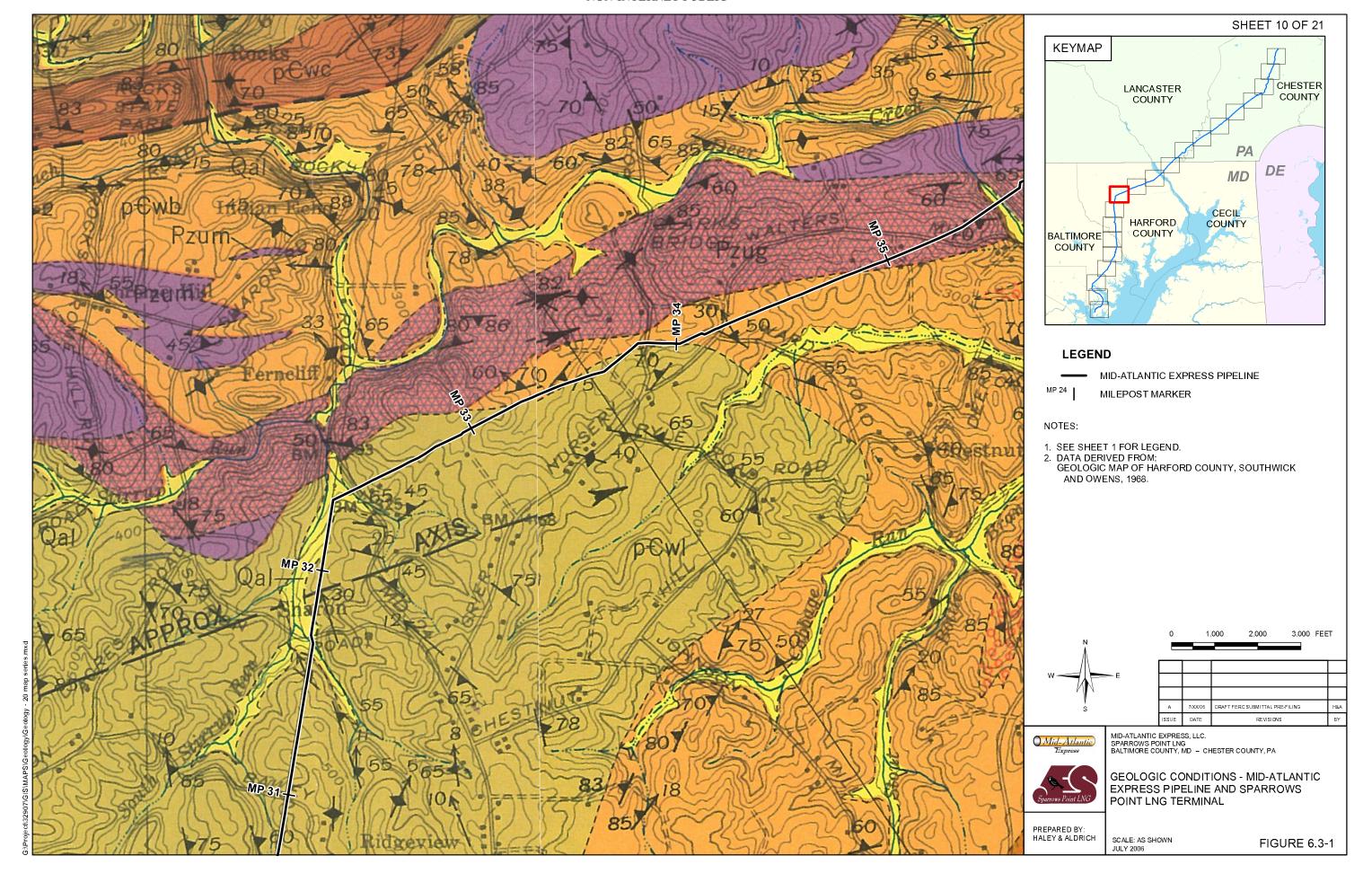


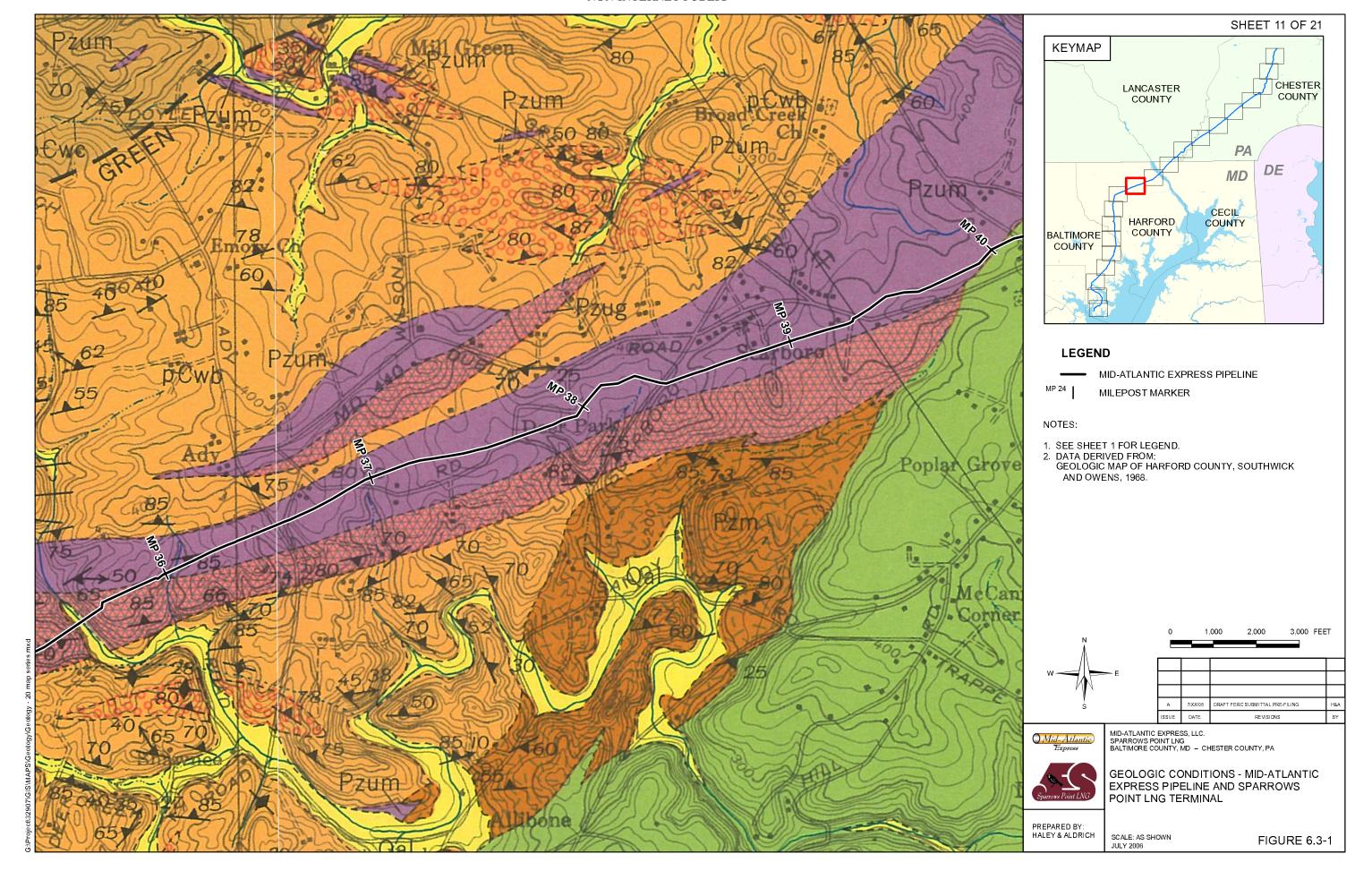


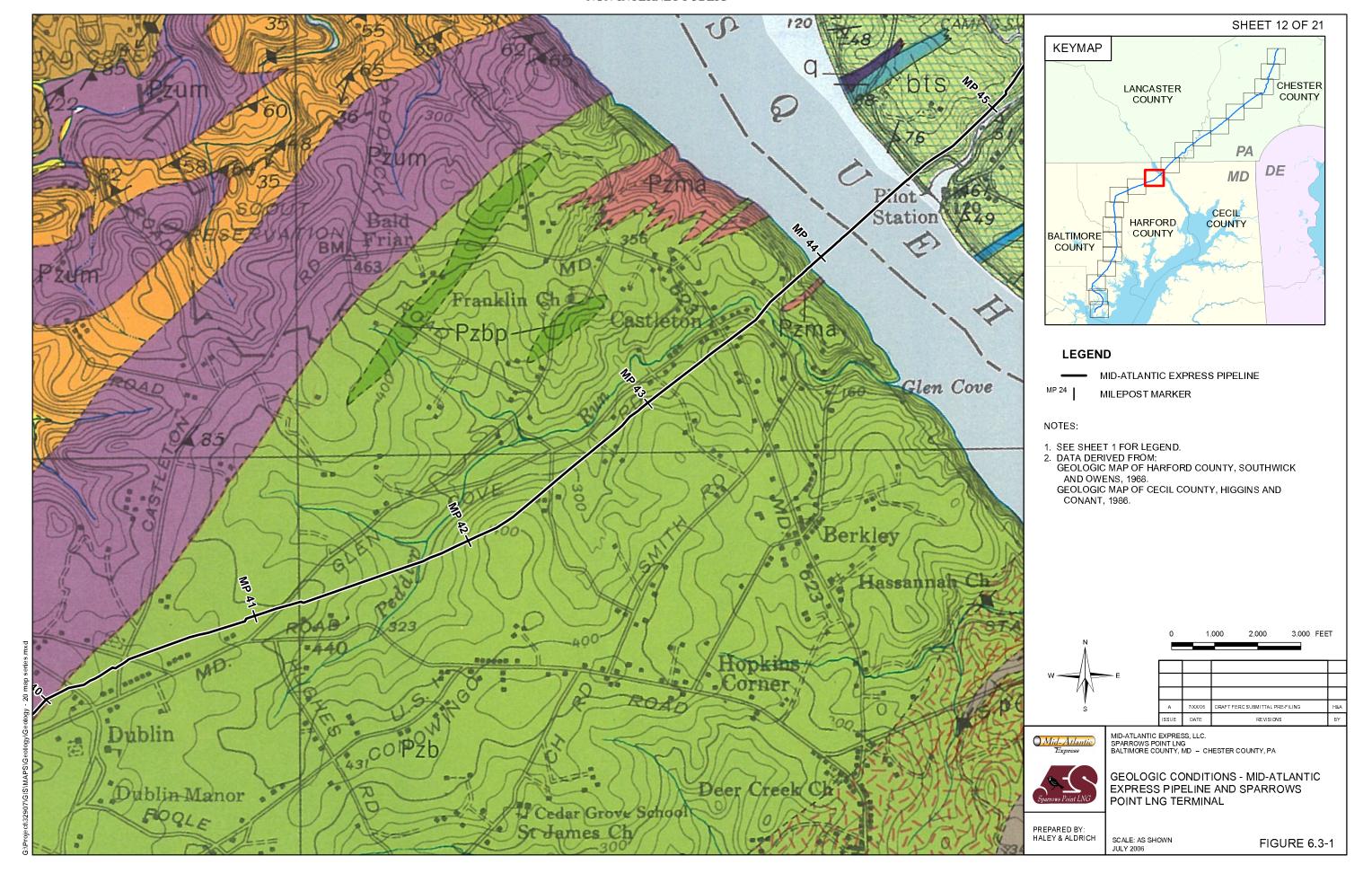


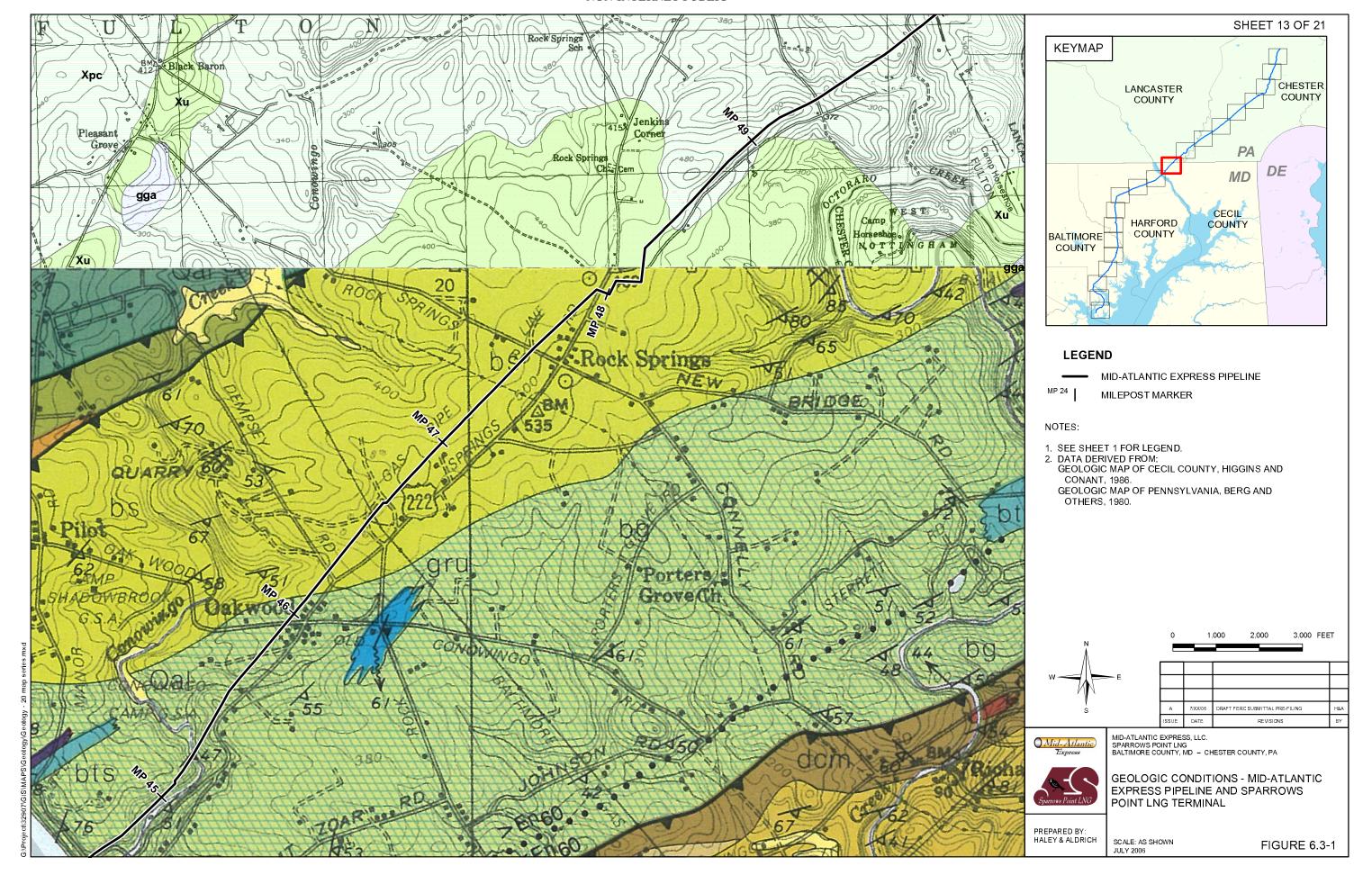


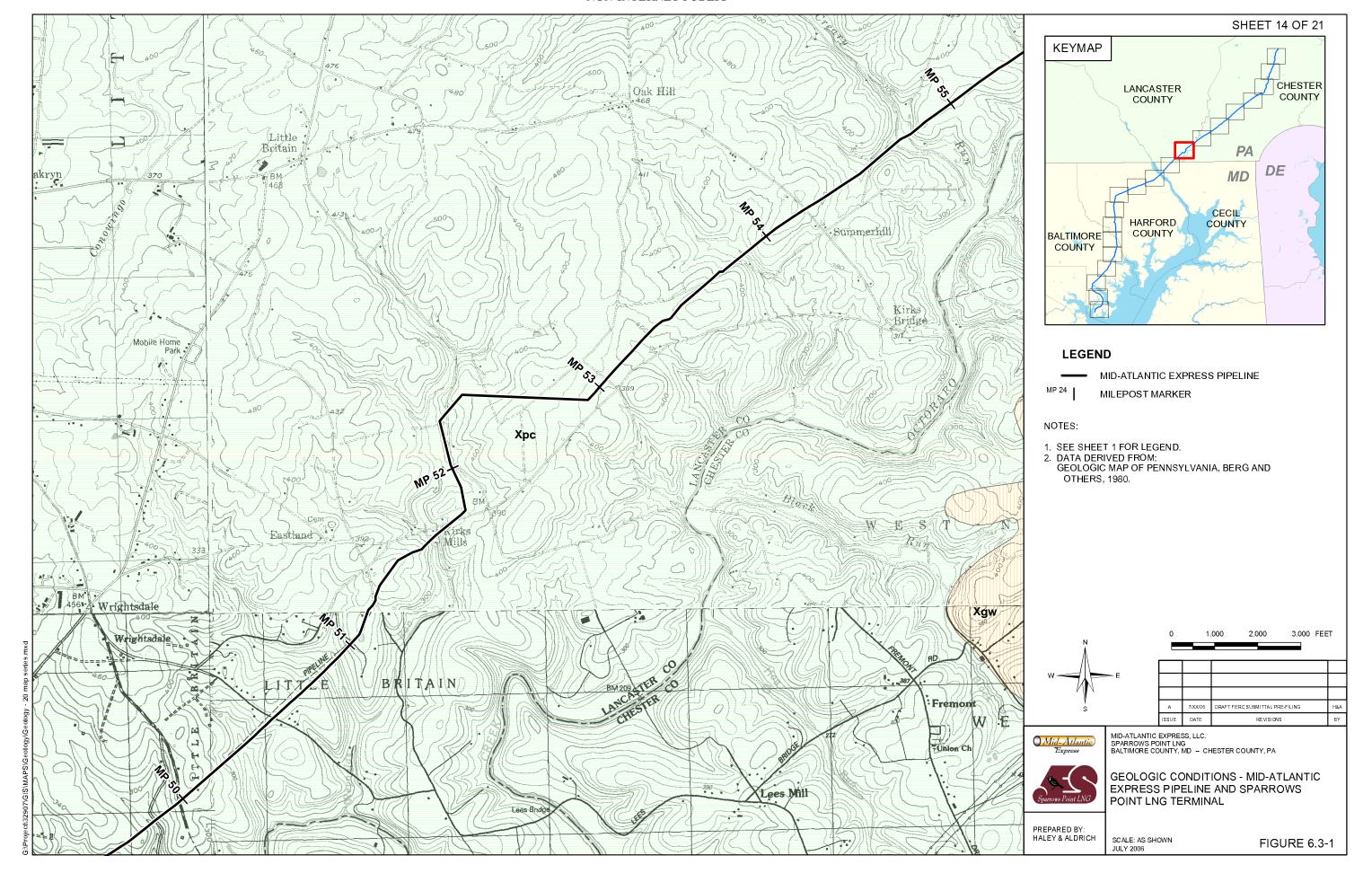


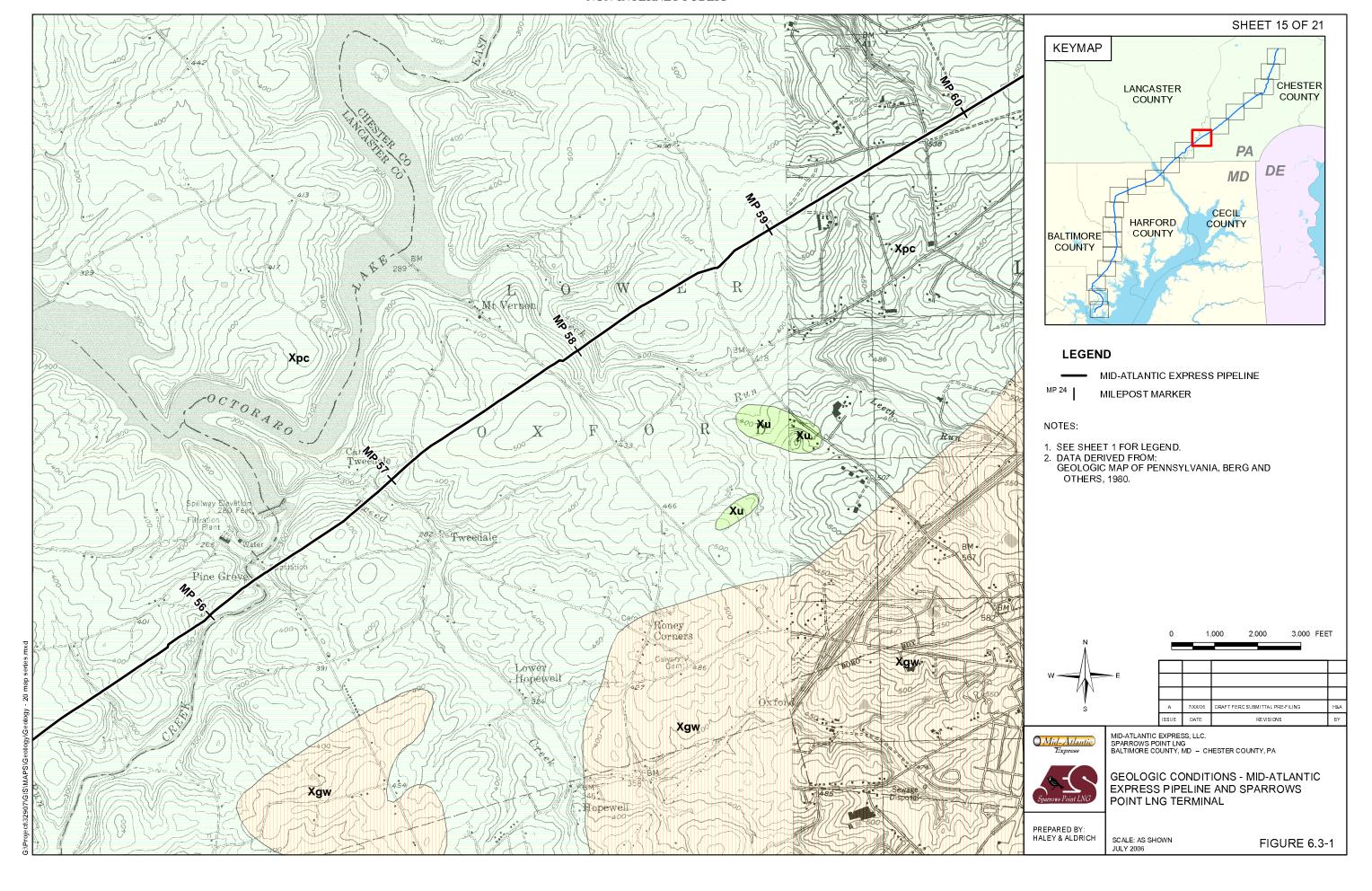


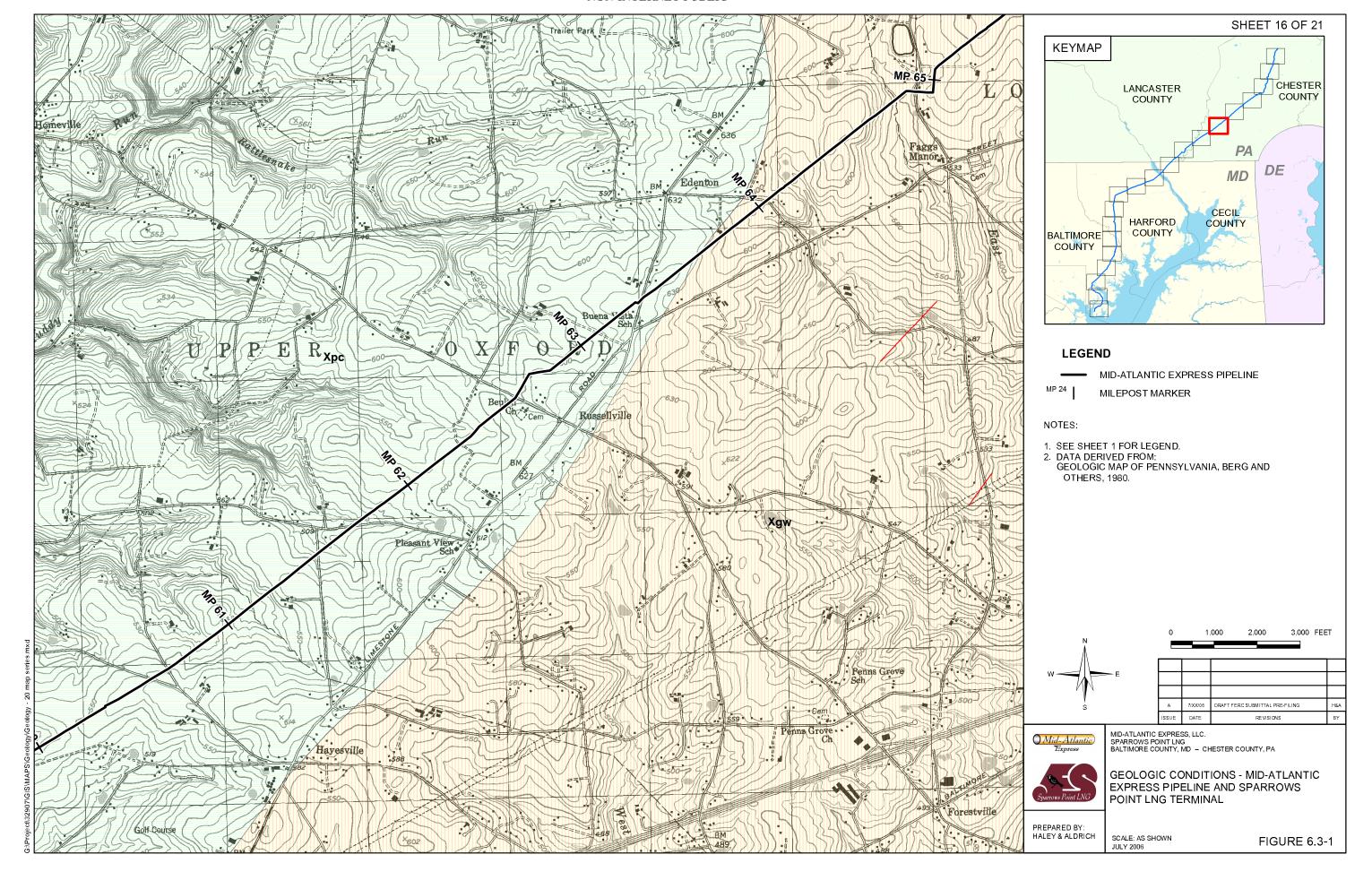


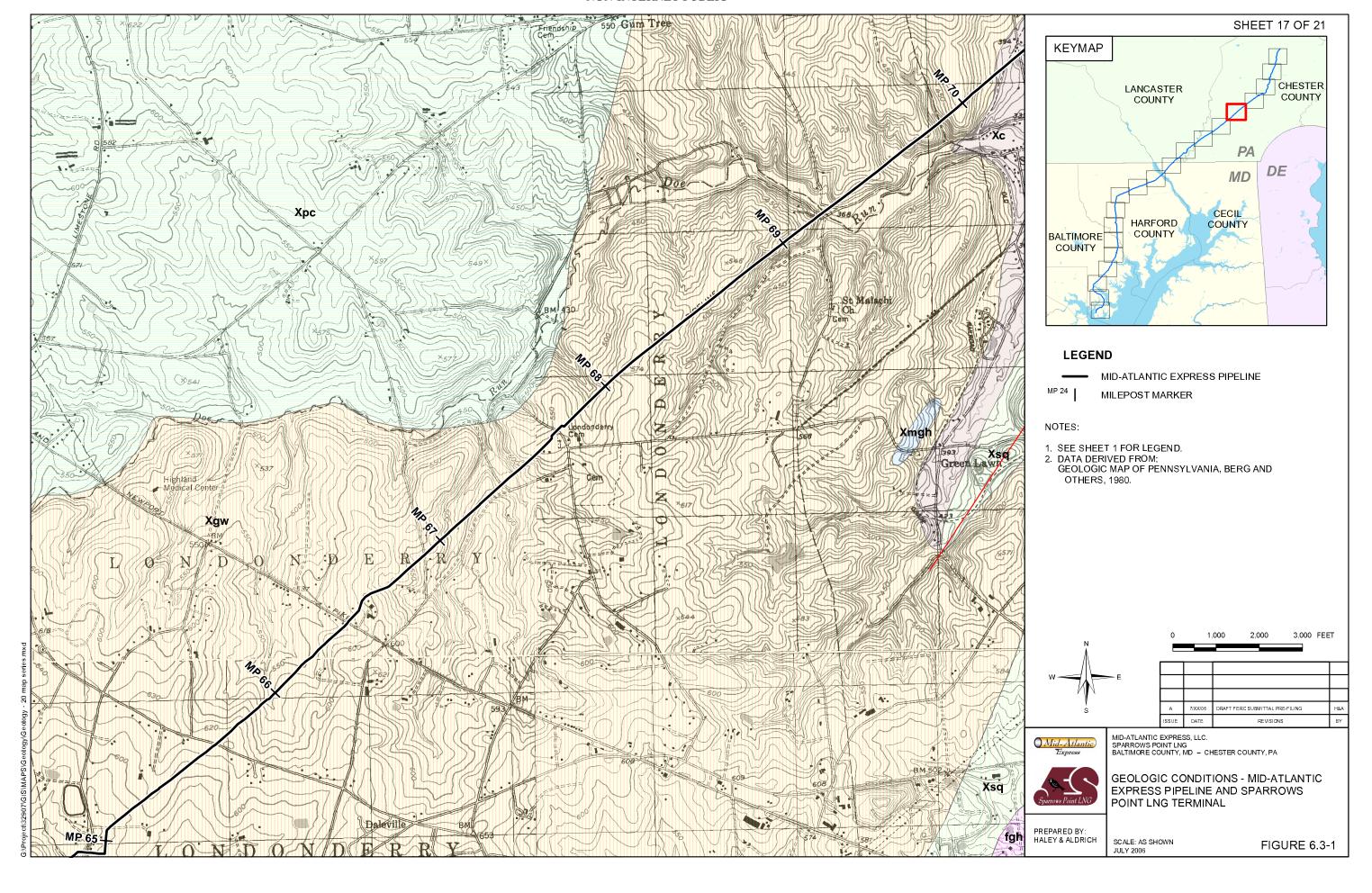


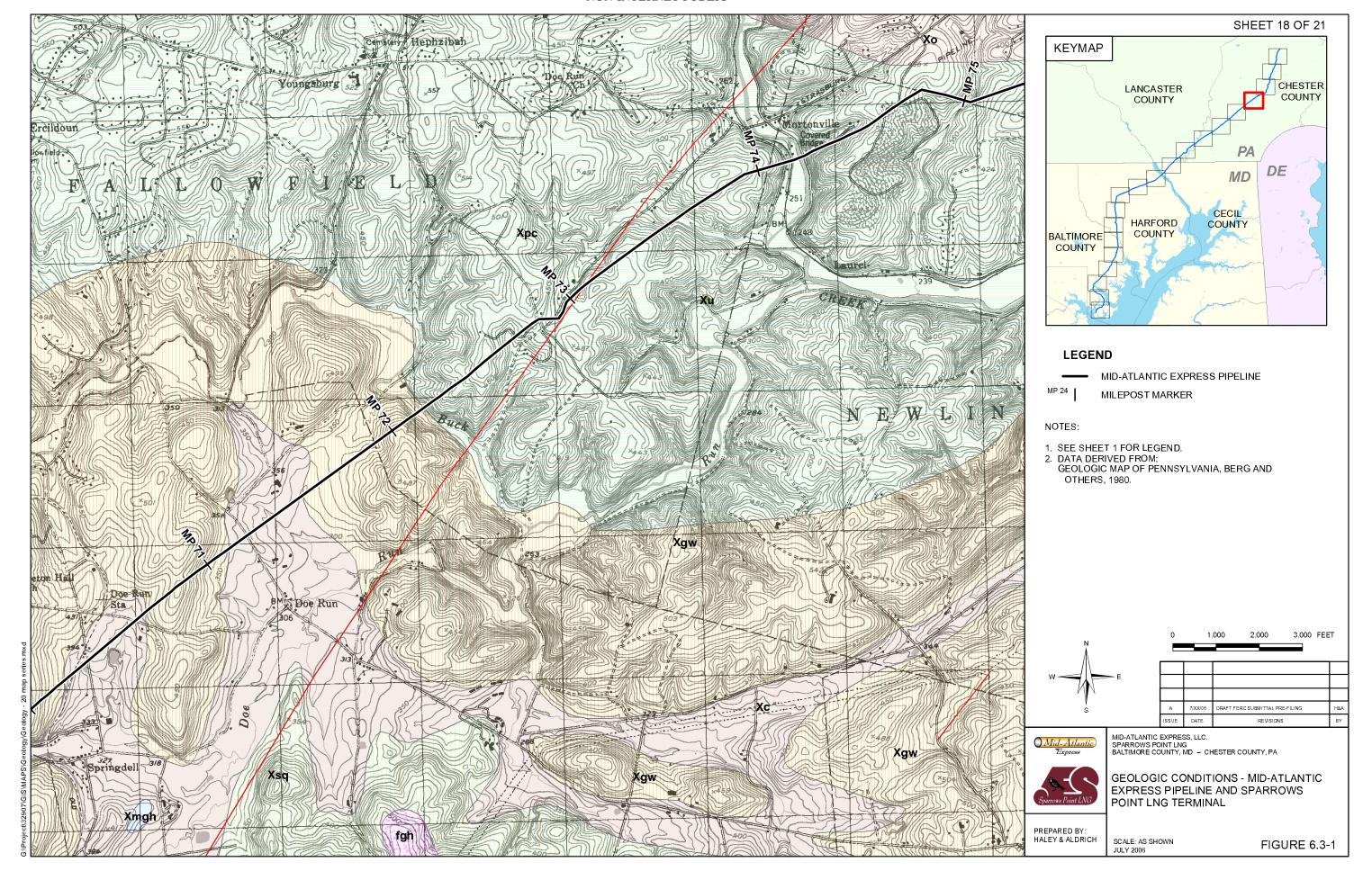


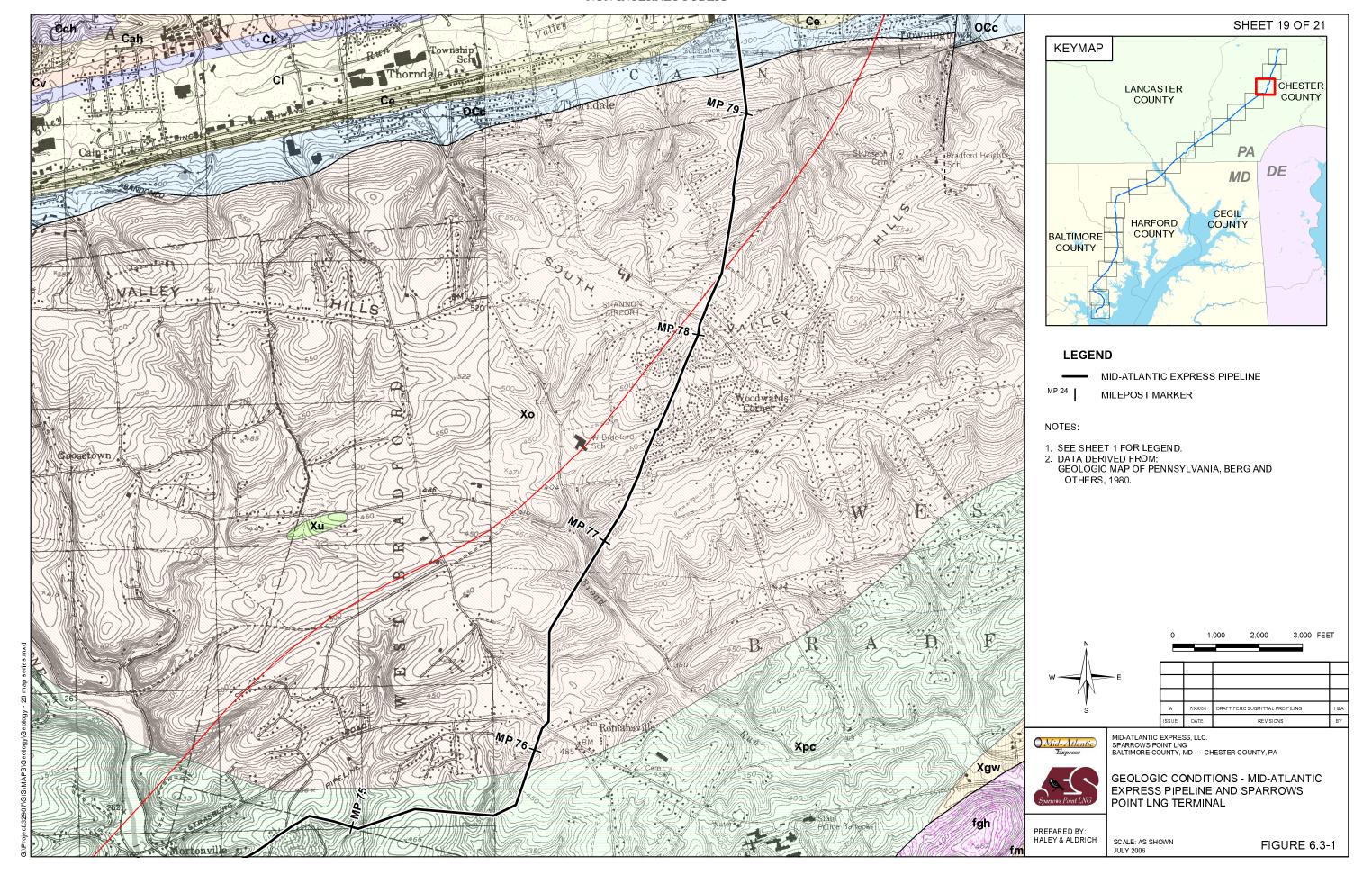


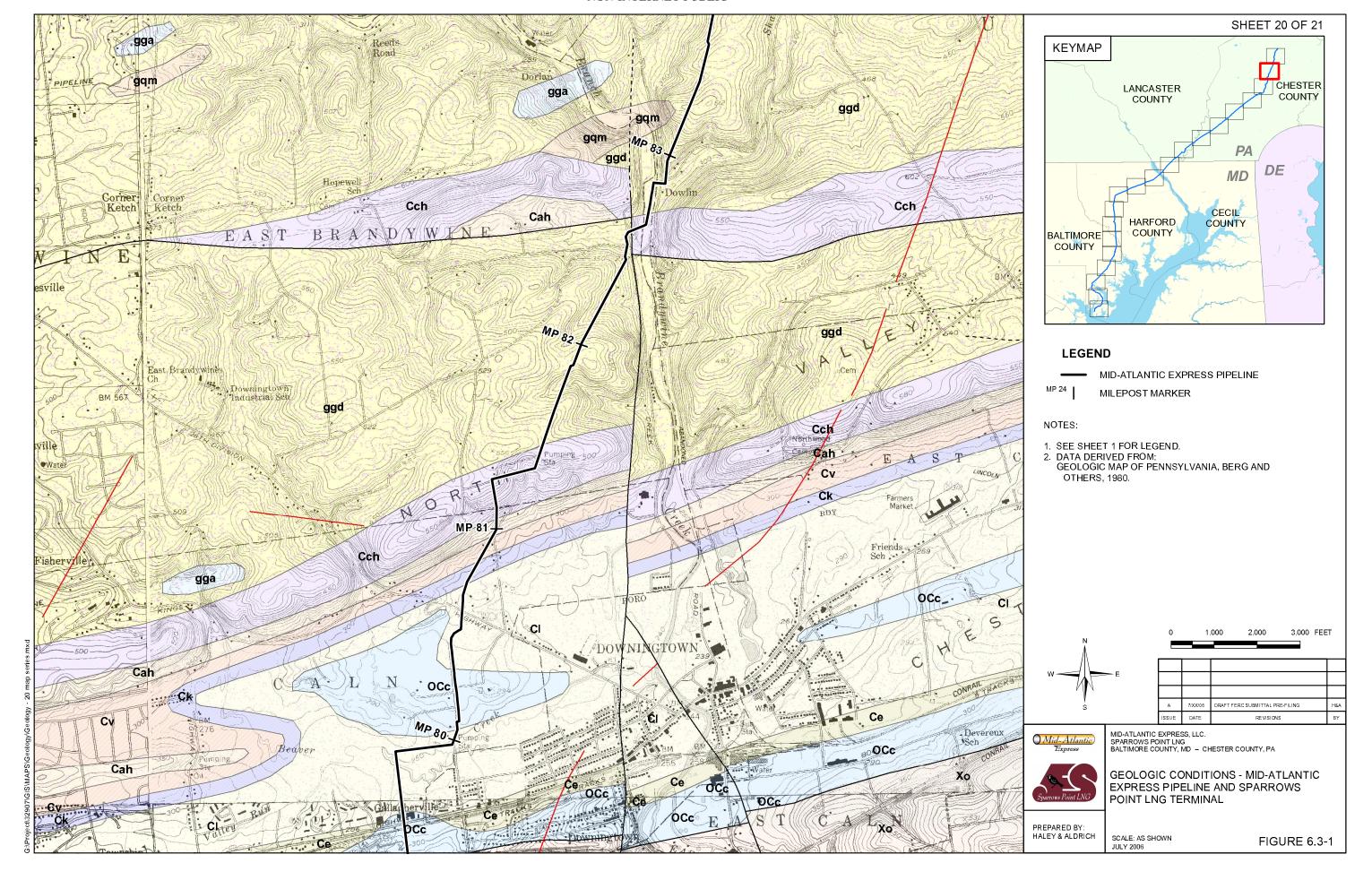


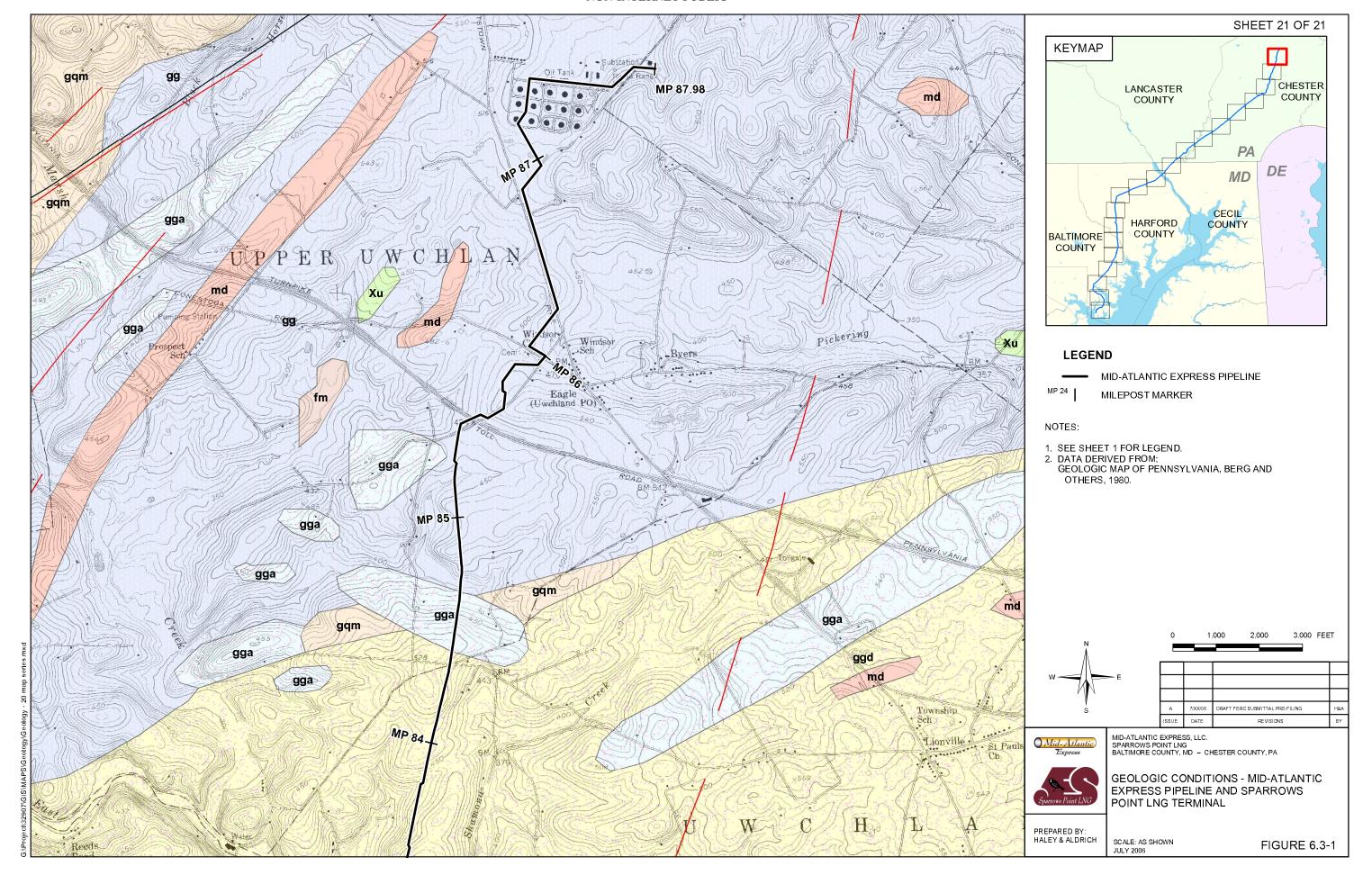


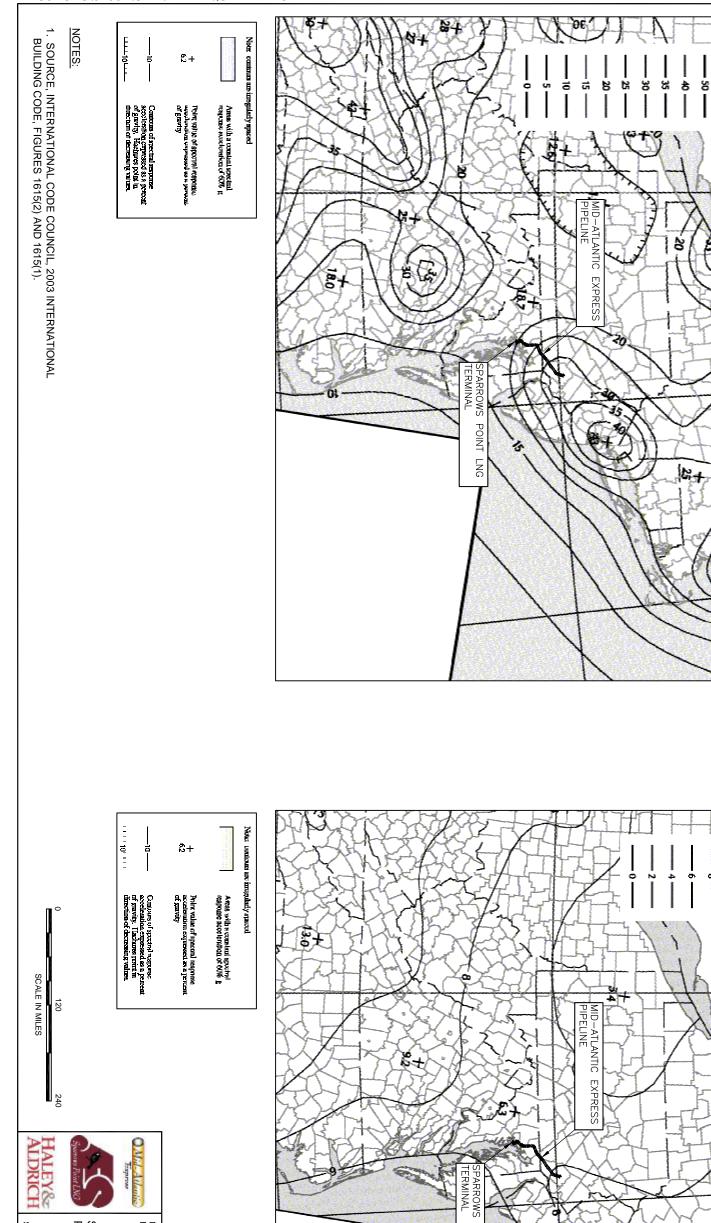












POINT LNG

MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR THE CONTERMINOUS UNITED STATES OF 1.0 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B

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MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION FOR THE CONTERMINOUS UNITED STATES OF 0.2 SEC SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING), SITE CLASS B

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AUG 2006

SCALE: AS SHOWN

SEISMIC ZONE MAP - SPARROWS POINT PROJECT

MID-ATLANTIC EXPRESS PIPELINE BALTIMORE, MD -- CHESTER, PA

DATE

DRAFT FERC SUBMITTAL PRE-FILING